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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,218	07/25/2003	Robert W. McMillan	01-07	3318

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U.S. ARMY SPACE AND MISSILE DEFENSE COMMAND
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EXAMINER
NGUYEN, TU T

ART UNIT	PAPER NUMBER
2886	

MAIL DATE	DELIVERY MODE
09/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/631,218	MCMILLAN ET AL.	
	Examiner	Art Unit	
	Tu T. Nguyen	2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4,7-14,18-20 and 23 is/are rejected.

7)☒ Claim(s) 5,6,15-17,21 and 22 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 25 July 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 10/17/2003.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 19 is objected to because of the following informalities:

Claim 19, line 1, "ladar" should be changed to "radar".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shpantzer et al (2002/0186435) in view of Wooten (6,493,473).

With respect to claims 1,10, Shpantzer discloses a system comprising: a receiver (paragraph [0015]) that is configured to: receive a first polarization (P1) of a signal and output the first polarization of the signal into the in-phase and quadrature components; and receive a second polarization of the signal and to output the second polarization of the signal into the in-phase and quadrature components; and a processor (receiver processor, paragraph [0015]) that is configured to: receive each of the in-phase and quadrature components of the first and second polarizations (paragraph [0015]); and determine the Stokes polarization vector components of the signal (paragraph [0022]).

Shpantzer does not explicitly disclose splitting the first and the second signal into the in-phase and quadrature components. Wooten discloses a splitter for splitting a

signal (abstract). It would have been obvious to modify Shpantzer with the splitter for splitting the signal into components as claimed to facilitate the measurement.

Claims 2-4,7-9,11-14,18-20,23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shpantzer et al (2002/0186435) in view of Wooten (6,493,473) and Born ("Principles of Optics", Third (revised) Edition, 07/27/2001).

With respect to claims 2,11, Shpantzer discloses the claimed invention except for the method of calculating the Stokes vector components. Born disclose a method for calculating a Stokes vector 43 (page 30) as claimed. It would have been obvious to modify Shpantzer with the method of calculating the Stokes vector taught by Born for different intended uses.

With respect to claims 3,12, Shpantzer discloses the first polarization being orthogonal to the second polarization (paragraph [0015]).

With respect to claims 4,13-14,18-20, Shpantzer discloses the claimed invention except for an antenna or a circulator or the radar frequencies. However, it would have been obvious to modify Shpantzer with the antenna or the circulator as claimed to transmit the signal any desired location.

With respect to claims 7,23, Since Shpantzer discloses receiving analog input signals and outputting digital signals (paragraph [0043]), the claimed analog to digital converter would have been inherent.

With respect to claims 8,9, refer to discussion in claim 1 above for the system and claim 2 above for calculating the Stokes vector components.

Allowable Subject Matter

Claims 5-6,15-17,21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per claims 5,15,21, the prior arts of record, taken alone or in combination, fail to disclose or render obvious a first reference oscillator; a first local oscillator operatively connected with the first reference oscillator; a first mixer which receives input from the polarizer and the first local oscillator; a first amplifier operatively connected with the polarizer; a first splitter operatively connected with the first amplifier and functioning to separate the in-phase and quadrature components; a first in-phase mixer operatively connected with the first reference oscillator and operatively connected with the first splitter to receive the in-phase component; a first phase shifter operatively connected with the first reference oscillator; and a first quadrature mixer operatively connected with the first phase shifter and operatively connected with the first splitter to receive the

quadrature component, which structurally arranged and functionally operated as claimed in claim 5,15,21, in combination with all the limitations of the base claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T. Nguyen whose telephone number is (571) 272-2424. The examiner can normally be reached on T-F 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on (571) 272-2800 Ext. 86. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tu T. Nguyen
Primary Examiner
Art Unit 2886

0916/2007